

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20554**

In the Matter of	)	
	)	GN Docket No. 09-157
Fostering Innovation and investment in the	)	
Wireless Communications Market	)	
	)	
A National Broadband Plan For Our Future	)	GN Docket No. 09-51
	)	
	)	

**REPLY COMMENTS IN RESPONSE TO  
NOTICE OF INQUIRY**

PCM, hereby submits its reply comments in response to the Commission's Notice of Inquiry ("Notice") released on August 27, 2009 in captioned proceeding.<sup>1</sup> By these reply comments, PCM demonstrates that Fixed-Mobile Convergence ("FMC") is a critical service where the Commission can and should foster enhanced innovation and investment by adopting a few critical regulations needed to assure that market forces can operate effectively and that FMC can promptly become an efficient reality.

**I. EXECUTIVE SUMMARY**

The Commission is commended for establishing this docket that seeks to identify new and innovative applications for wireless services and also to identify those impediments to the realization of these new applications. PCM submits that the single most compelling innovation in wireless services is the integration of local wireline/wireless networks with traditional wide area wireless (cellular) networks. The integration of wireline and wireless that is FMC represents the next major plateau in the growth of wireless service, particularly in residential and small-medium businesses, and provides a practical and effective step to foster competition in the wireless industry.

The most critical FMC questions are: (a) who are going to be the winners and losers as FMC is deployed over the next 1-3 years and (b) if the current dominant national wireless carriers

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<sup>1</sup> By Public Notice released October 9, 2009 (DA 09-2206) the Commission established this date as the revised reply comment date for the captioned proceeding. Accordingly, these reply comments are timely filed.

succeed in extending their commanding market position into the burgeoning FMC industry, at what pace and in what form will that industry evolve? If the nation's two largest wireless carriers are permitted to dictate the outcome on either of these issues, FMC is not likely to evolve efficiently and the nation will have lost an opportunity to preserve the position, and likely viability, of regional, independent local exchange carriers. There would also be a lost opportunity for new players from the CATV, ISP and CLEC industries to provide dynamic competitive energy into the telecommunications market.

On the other hand, with only a minimal level of governance, the Commission can allow FMC to preserve the independent operators and open the door for new competition. Consumers will benefit from greater choice in service providers, market forces will bear on prices and the innovative technology benefits of the competitive environment will prevail. The key public policy that simply needs to be expanded is the requirement for roaming between local and wide area wireless networks. The most expedient and effective way to accomplish this is to clarify the application of mandated roaming such that the existing roaming rules apply to subscribers who reside both within and outside the wireless carrier's licensed service area. This would permit the existing roaming agreements to be used to provide an immediate opportunity to enable the regional ILEC's and other independent companies to introduce FMC. This is the most efficient approach to permit FMC to be an open and exciting wireless application.

## II. INTRODUCTION

PC Management, although a small company, has had a significant influence in the wireless market, particularly in the development of rural markets, for over 18 years. The founders and principals of the company have been entrenched in the wireless industry since its inception in 1982. The company provides both management services and investment for startup wireless carrier ventures in rural markets – initially with RSA's and subsequently with BTA's. The company has developed fourteen independently operated companies for various license holders. All but one of these companies were acquired by the national carriers and integrated into their network.

Recently PCM has supported the development of an FMC solution, working in conjunction with companies representing the regional ILEC, CATV and ISP industry sectors. Leveraging the

company's knowledge and experience in the wireless industry, PCM has developed an FMC solution that supports the preservation of regional ILECs and provides an opportunity for CATV, CLEC and ISP companies to enter the wireless market.

### III. BACKGROUND

The Commission's overarching goal in this proceeding is to obtain input on opportunities for wireless innovation and the impediments thereto and how new wireless applications and use of spectrum can be adapted to the benefit of the general public.

In Paragraphs 11 -12 of its Notice, the Commission seeks comment on the Commission's role in supporting and encouraging innovation and investment and, in addition, on the most significant obstacles and deterrents to wireless innovation and investment. Similarly, in Paragraph 12 the Commission seeks comment of the most important high-level trends driving innovation and investment through the wireless ecosystem.

Under the section of the Notice entitled "Networks, Devices and Applications", the Commission seeks comments on the developments and innovations that are promoting investment in and robust use of wireless network infrastructures. Notice, at 48-65. More specifically in Paragraph 51, the Commission addresses the convergence of wireless and wireline networks in an FMC architecture. The Commission also asks if any of these innovative network proposals offer opportunities to more efficiently distribute broadband to rural regions. *Id.*

### IV. DISCUSSION

#### a) The Opportunity

The single most compelling innovation in wireless services is FMC, which involves the integration of local wireline/wireless networks with traditional wide area wireless (cellular) networks. The deployment of local area wireless service (i.e. Wi-Fi) in homes, small-medium business ("SMB") and hot-spots is being implemented as a natural enhancement to traditional wireline and cable broadband services. The deployment of Wi-Fi provides access to the Internet

and other broadband applications and services and also makes wireless voice service operating on unlicensed spectrum (using 802.11 technology) readily available to a growing number of consumers.

Regional local exchange carriers see the need to provide wireless mobility to their local subscribers including residential and business customers, as a critical and essential strategy to survival. The regional ILEC subscriber base is being eroded by the migration of local telephone services to wireless networks. Many studies have demonstrated that the ILEC's are losing market share and that this trend will increase significantly as young adults, who have grown up comfortable with wireless service as their basic telephony service, eschew wireline services at their homes and in the business environment. In a similar manner CATV, CLEC and ISP companies recognize that mobility is essential to effectively competing in residential and business telephony markets.

The local access market is being lured away from traditional landline services by wireless innovation and flexibility. While most would argue that wireless innovation is generally positive, Verizon Wireless and AT&T Mobility are using their market dominance to restrict competition, eliminate the wireline players (other than their own wireline businesses) and limit consumer choice. In the past the landline telephone company had certain technology advantages over newer cellular technology such as superior call quality and service reliability. Wide area wireless networks were designed to cover large geographic areas and were focused primarily on outside coverage particularly major roads and highways. In-building coverage has often been spotty and unreliable and consumers felt they needed a landline phone in their homes for security and reliability and a wireless phone for mobility. However as RF technology has evolved the dominant national wireless carriers have a new weapon to attack the regional ILEC – the femtocell. The focus and marketing effort being placed on femtocell-based services by the national carriers is and will continue to be a significant aspect of their strategy to dominate in-home telephony as well as their near-monopoly in the mobility arena. Clearly these national wireless operators see the residential and SMB market as the next major opportunity to expand their market presence, eliminate competition and reduce consumer choice.

b) The Dilemma

Regional ILEC, CATV and ISP companies find themselves severely handicapped in their FMC efforts due to limited access to spectrum. The dominant wireless operators – AT&T Mobility and Verizon Wireless, hold a commanding position over independent companies that have not accumulated licensed spectrum over the past 25 years. Despite the well-intentioned efforts of the Commission to increase the amount of available spectrum, most of the spectrum auctioned in the past five years has been won by existing national wireless carriers with their insatiable appetite to acquire and control the key component of a wireless service. The cost of entry, availability of capital for infrastructure and the challenge of demonstrating an acceptable return on investment has seriously constrained the ability for small, independent or new competitors to enter the wireless industry.

Access to spectrum creates a formidable barrier to entry for independent operators to compete in meeting consumer demand for wireless mobility. The independent companies do have access, however, to unlicensed spectrum and are using this spectrum for the deployment of wireless LAN's (Wi-Fi) in homes, SMBs and in public areas such as rail (Amtrak), airports, hotels and in a growing number of hot-spots. As community-oriented organizations, regional ILECs and other independent telecom providers have access to the homes of their subscribers. Regional ILEC's in particular, see the deployment of Wi-Fi, connected to their broadband networks, as their best and potentially only economically viable strategy to retain their existing subscribers. The regional ILEC strategy and the market opportunity for CATV and ISP companies are to establish a beachhead in wireless through the wireless LAN. This strategy enables a wireline and cable operator to leverage their broadband investment and potentially grow their broadband reach. Not only do these providers have the ability to address the Commission's stated objective of making broadband available to un-served and underserved communities, they can do so in a commercially attractive manner bringing new innovative products and services to their subscribers very cost effectively. In other words, FMC provided by regional ILECs, CATV and ISP providers lowers the overall cost of telecom to the end user while enhancing the value of existing broadband networks, providing both suppliers and consumers and economically sustainable business model.

The challenge beyond the initial step is to ensure that regional ILEC, CATV and ISP subscribers have the ability to use their wireless devices when away from their home. We agree with Commissioner Copps statement on FCC-07-143 in which he says

“Consumers should not have to be amateur engineers or telecom lawyers to figure out which mobile services they can expect to work when they travel. They should be able to assume that their phones will work to the fullest extent that technology permits, wherever that happens to be”.<sup>2</sup>

The only feasible option is to gain access to the traditional cellular networks. Thus the potential for long term success of FMC is critically linked to the bridging of Fixed/Wi-Fi networks with traditional mobile cellular networks.

PCM is working with several regional ILEC, CATV and ISP operators to provide FMC solutions. There are, today, several trials in process utilizing Wi-Fi in homes and public areas, connected via existing wireline and cable broadband networks and linked to traditional wireless cellular networks for wide area coverage.<sup>3</sup> Hand-over between the local and wide area networks without call interruption has been successfully tested and deployed in these trials. Many of the major handset manufacturers also have enhanced their handsets to include a Wi-Fi capability. There is a wide variety of phones available today that work in both the LAN/Wi-Fi environment and in the WAN/cellular networks. With the successful deployment of FMC the demand for these dual-mode phones will grow and the selection of Wi-Fi capable handsets will expand rapidly creating new innovative choices for consumers and new competition to the exclusive handset deals in place with the dominant wireless carriers today. FMC will further provide motivation for developers to create new applications and services that will be transported across both fixed and mobile networks. The enhancement of traditional landline service with Wi-Fi to an FMC application is available today and can mark the next major evolution in wireless services – if public policy supports the application.

Sound public policy should be based upon recognition of the following factors at work in the wireless market:

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<sup>2</sup> Statement of Commissioner Michael J. Copps approving in part, concurring in part-Re-examination of Roaming Obligations of Commercial Mobile Radio Service Providers, WT Docket No. 05-26, Report and Order and Further Notice of Proposed Rulemaking, FCC 07-143

<sup>3</sup> Consumers Union Press Release, October 1, 2009;  
[http://www.hearusnow.org/2009/10/consumers\\_union\\_others\\_urge\\_fc-print.html](http://www.hearusnow.org/2009/10/consumers_union_others_urge_fc-print.html)

- First, the wireless mobility market is dominated by two national players. AT&T Mobility and Verizon Wireless control approximately 70% of the current wireless market based upon subscribers. Although both of these national operators claim there is an abundance of competition, the fact that these two companies are dominant and control their respective technology applications is indisputable.<sup>4</sup> A shrinking number of independent operators, including Sprint and T-Mobile, are competing for an ever-decreasing share of the market. We agree with Consumers Union, the parent company of Consumer Reports in its comments to the Commission warning “that simply counting the number of providers in a particular area does not demonstrate whether or not consumers are getting a good deal in wireless services.”<sup>5</sup> Consumers Union policy analyst Joel Kelsey states correctly,

“as more Americans are ‘cutting the cord’ and switching from wired to wireless services, increasing consolidation has led to increasing costs that are reaching deep into the pocketbooks of the vast majority of American Consumers”. We also agree with Consumers Union’s statement that “the costs associated with cell phone use are growing quickly, while the number of providers is contracting.”<sup>6</sup>

- In 2004 approximately 70% of the market was shared by five wireless carriers while 24% of the market was supported by numerous Tier 2 and Tier 3 operators. In less than five years *two* operators control 70% of the market and only 9% of the market is served by a greatly reduced number of Tier 2/3 independent operators who address small and rural markets.<sup>7</sup> During a short five year period, consumers, especially in rural communities served by small carriers have fewer provider options.

<sup>4</sup> See, e.g., comments of U.S. Cellular Corp. in this proceeding; see also Comments of Rural Cellular Association in WT Docket No. 09-66, submitted September 30, 2009..

<sup>5</sup> Consumers Union Press Release, October 1, 2009;  
[http://www.hearusnow.org/2009/10/consumers\\_union\\_others\\_urge\\_fc-print.html](http://www.hearusnow.org/2009/10/consumers_union_others_urge_fc-print.html)

<sup>6</sup> *Id.*

<sup>7</sup> US Wireless Data Update 2004 and 2006; Chetan Sharma Consulting CTIA  
 UBS Investment Research, US Wireless 411, June 22, 2009  
 Local Telephone Competition Status as of June 30, 2008

- Second, the national wireless operators are also affiliated with the dominant wireline carriers. The strategic imperative for AT&T and Verizon is to extend and leverage control of the wireless market by exercising influence and control over the pace and the transition path of the deployment of wireless service and applications in the residential and SMB market. They have both adopted a similar strategy of expanding on their dominant position with spectrum by extending the use of that spectrum into the residential and SMB markets via the use of femtocell technology. The femtocell technology is basically an extension of the licensed spectrum amplified within the target area, be it home or business. At the same time the dominant wireless operators want to constrain the introduction of FMC. That is, it is in their best interest to not permit the regional ILEC's, CATV and ISP companies to gain access to the wireless market and/or to expand or even retain their traditional landline business by limiting the deployment and adoption of FMC.

#### c) The Solution

The essential element for FMC to succeed for the regional ILEC, CATV and ISP operators is access to the wireless cellular (WAN) networks controlled by the national carriers. The most pragmatic way for them to gain access to these networks is by establishing a public policy that provides for “roaming” between wireless LAN networks and WAN networks, just as existing public policy requires all licensed operators that provide traditional cellular service to provide roaming between networks under current Commission rules.<sup>8</sup>

The roaming policy that has been an integral part of the wireless industry since inception would seem to be easily expanded to include roaming from different technology based networks, be it

<sup>8</sup> Another, seemingly less desirable option is to require the traditional wireless carriers to “resell” access to and services provided by their networks to all who seek such on fair and non-discriminatory terms. That would prevent the national wireless carriers from reselling services to their landline affiliates on any better terms than they can to any independent operator. This resale relationship could be compared to the dynamic MVNO market structure that has been successfully adopted throughout Europe. However the dominant US operators have for years rejected this structure, as it undercuts the market control enjoyed by these dominant carriers. It is difficult to imagine that the resale option will have much chance of success based upon the posture that the national carriers have taken with regard to the MVNO market structure. Thus the most viable option is to adopt public policy that allows for “roaming” between LAN and WAN wireless networks.



Wi-Fi, WiMax or some as yet undefined application just over the technology horizon. When initially introduced roaming existed only between like technologies and frequencies. When PCS 1900 MHz networks were built the roaming standards evolved to include both bandwidths and handset manufacturers created dual-band devices that could operate on both bandwidths. Today most handsets are “multi band” and will operate on several frequency bands and roaming across these disparate frequency bands is now industry standard. Roaming standards evolved as the technology evolved. Today there are many handsets that are capable of operating on both WiFi and either GSM or CDMA networks. Roaming standards need to continue to evolve accordingly. In addition, the use of existing industry support structures, including standard roaming terms and conditions that have been developed and codified in existing roaming agreements over the past two decades, clearinghouse agreements and technical standards administrative bodies can all be leveraged into an easy and rapid implementation of “(LAN) Network to (WAN) Network” roaming. We agree with the statement made by Chris Riley, policy counsel at Free Press, “ By looking at a broader range of wireless competition issues such as investment, prices, roaming agreements, special access and other factors, we believe the anti-consumer and anti-competitive practices in the wireless industry will become even clearer”<sup>4</sup>

While this change in policy seems logical and eminently reasonable, we recognize that this change will not come without significant opposition. However while the goal is LAN to WAN roaming there is also a simple short term remedy that will allow FMC to continue to move forward with commercial deployment in 2010, in a timely manner to compete with the femtocell marketing programs of the dominant carriers. Current public policy can be easily modified such that the definition of “roaming” can be refined and clarified to extend to subscribers who reside outside of the licensed service area of the roaming partner. Today the definition of roaming is implicitly accepted (particularly by the dominant carriers) to include only subscribers who reside within the licensed coverage area. However this concept is not specifically addressed and it is not clear that this was the intention of the Commission in the existing roaming rules. Indeed in an era in which “addresses” are defined more accurately by an IP address than a physical residence or business as we did with POTS, it makes no sense to limit roaming to subscribers who reside within the licensed area. By simply permitting roaming to extend to any subscriber, independent of their place of residence, any existing wireless carrier can provide roaming access to the subscribers of the wireless LAN and can provide a bridge between LAN and WAN wireless networks. This could be as simple as a clarification of the existing rules and would quickly open

up a vast new opportunity for wireless services, provide for increased competition and allow regional LEC's to preserve their subscriber base and in many cases to survive.

## V. CONCLUSION

For all of the foregoing reasons, PCM urges the Commission to expand its roaming rules to require wireless carriers to permit FMC to become a market based reality that would ensure to the public interest by fostering more efficient communications. It would also preserve a position for regional ILECs and permit new competitive wireless entrants.

Respectfully submitted,

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November \_\_, 2009

**. CERTIFICATE OF SERVICE**

I, Robert Martin, hereby certify that on this 6th day of November, 2009, copies of the foregoing Reply Comments of PC Management, Inc. were sent by e-mail, in pdf format, to the following:

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